



*From “Wetland Program Development Grants (WPDGs) Case Studies”
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Michigan Department of Environmental Quality (MDEQ): *Increasing protection of aquatic resources by refining bioassessment methods to preserve the ecological integrity of Michigan’s unique coastal and inland wetlands*

Introduction

Michigan was the first state, and remains one of only two states, to have assumed administration of the Section 404 Program under the provision of Section 404(g) of the Clean Water Act. While Section 404 anchors Michigan’s wetland program, the state recognizes that only with a comprehensive approach to wetland protection, restoration and management will the long term goal of a net gain in wetland quantity and quality be achieved. Michigan’s wetland program is administered by the Department of Environmental Quality (MDEQ) --- formerly a part of the Department of Natural Resources. Since the inception of EPA’s WPDG program, MDEQ has taken advantage of this opportunity to partner with EPA and other organizations to establish the components of a comprehensive approach to wetlands management. The development of effective techniques for the evaluation of wetland resources is an excellent example of this partnership.

Michigan’s statewide wetland regulations (the Wetland Protection Part of the Natural Resources and Environmental Protection Act) include specific legislative findings regarding the value of wetlands and the benefits that they provide to the public. In order to evaluate the success of the state in protecting and managing Michigan’s wetland resources and to protect these public benefits, consistent and scientifically valid techniques for evaluating wetland quality are needed. Michigan’s public universities have provided the research capability necessary to assist in the development of wetland assessment tools. Partnership with the EPA through the WPDG program has provided, not only funding to support this effort, but a link to similar research being undertaken on a regional and national scale. The benefits of eight years of work in the development of bioassessment techniques are clear --- Michigan’s ability to evaluate impacts to wetland systems and to defend regulatory and policy decisions has developed significantly.

WPDG Activity

The WPDG awarded to MDEQ in 1997 was pivotal to the development of bioassessment tools for the state and the Great Lakes region. This initial project was a cooperative effort including MDEQ, the Michigan Natural Features Inventory (MNFI), and Michigan State University – Department of Zoology (MSU). Objectives of the project included: establishing and monitoring reference sites for Great Lakes coastal marshes and inland forested wetland sites; developing a bioassessment process to evaluate the ecological integrity of the wetland types; and establishing an interagency regional work group willing to work cooperatively toward these goals.



Biological monitoring in a coastal marsh in Michigan's Upper Peninsula during development of pilot bioassessment protocols in Hog Island Marsh, Mackinac County. Photo courtesy of Dr. Thomas Burton (MSU).

This initial effort contributed to the increasing acceptance and use of wetland bioassessment methods for a variety of purposes in Michigan and the Great Lakes region. Grand Valley State University (GVSU) joined the original team and contributed to the development of bioassessment procedures for coastal wetlands based on macroinvertebrates and fish. These methods have been published in peer reviewed scientific journals. Development of indices of biological integrity (IBIs) for inland forested wetlands and open herbaceous marshes are nearing completion, with the forested wetland IBI in preparation for publication in a peer reviewed journal. The WPDG project activities also encouraged the collaboration of state, federal and academic research staff, who gathered at MSU's Kellogg Biological Station to share information regarding wetland bioassessment and work cooperatively to support development of new methods.

Accomplishments that have resulted from WPDG activities include:

- Since the year 2000, researchers from MSU and MNFI have played lead roles in the Great Lakes Coastal Wetland Consortium, an international effort to define and implement protocols for the long-term monitoring of Great Lakes wetlands;
- Bird Studies Canada uses the bioassessment methods developed by MDEQ to monitor Great Lakes Areas of Concern;

- Research staff from MSU and MNFI testified in various proceedings, using expertise developed through the bioassessment program, to support MDEQ regulatory findings regarding the importance of forested and depressional wetlands; and
- MDEQ researchers have also testified before the Michigan Legislature regarding the importance of Great Lakes Coastal Wetlands and the necessity of maintaining the biological integrity of these resources.

MDEQ updated rapid assessment methods, informed by research carried out during the development of IBIs, to support the State's 404 Program. They also developed a long-term, statewide wetland monitoring strategy, in which bioassessment methods will play a significant role in evaluating wetlands on a watershed basis. In addition, the Land and Water Management Division of MDEQ received a WPDG grant to draft a Wetland Mitigation Manual to provide guidance on topics including site selection and design, scientific construction, performance standards, monitoring techniques, functional success and compliance reviews.

Current Work and Future Plans

In 2005, MDEQ was awarded funding for two projects under EPA's Environmental Outcome Wetland Demonstration Pilot program. The non-regulatory proposal focused on enhancing protection of Michigan's most exceptional wetlands, including Great Lakes coastal wetlands, through monitoring, private stewardship and prioritization of exceptional coastal wetlands for acquisition. The regulatory proposal aims to establish a Compliance and Enforcement Team to increase the effectiveness of MDEQ's regulatory program.

Please visit the Michigan Department of Environmental Quality (MDEQ) website (<http://www.michigan.gov/deq>) for more information about what Michigan is doing to protect wetlands and other natural resources.

Success Story Contributor: Peg Bostwick (MDEQ)

Michigan Department of Environmental Quality WPDG Success Story

Appendix

Partners:

- Dr. **Thomas M. Burton**, Michigan State University Departments of Zoology and Fisheries and Wildlife, and his students.
- Dr. **Donald G. Uzarski**, Annis Water Resources Institute, Grand Valley State University, and his students.
- Dr. **Dennis A. Albert**, Michigan Natural Features Inventory, Michigan State University Extension.
- U.S. **EPA Region 5 Wetlands and Watersheds Branch**, in particular Sue Elston
- The **MDEQ Coastal Management Program** with funding from the federal Coastal Zone Program.
- Members of the **Great Lakes Coastal Wetlands Consortium**, sponsored by the Great Lakes Commission with financial support of the EPA Great Lakes National Program Office.

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